

## Neotropical and Mexican *Mesosmittia* Brundin, with the description of four new species

(Insecta, Diptera, Chironomidae)

Trond Andersen & Humberto F. Mendes

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Four new *Mesosmittia* species, *M. annae*, spec. nov. from Guatemala and Mexico, *M. glabra*, spec. nov. from Ecuador, *M. guanajensis*, spec. nov. from Mexico, and *M. hirta*, spec. nov. from Ecuador, are described and figured as male imagines. New records for *M. acutistylus* Sæther, *M. lobiga* Sæther, *M. proluxa* Sæther and *M. tora* Sæther from Mexico, and for *M. patrihortae* Sæther from Mexico, Costa Rica, Nicaragua, Venezuela and Brazil are added. A key to male imagines of all Neotropical and Mexican *Mesosmittia* species is given.

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### Introduction

The genus *Mesosmittia* was erected by Brundin (1956) for *Spaniotoma* (*Orthocladius*) *flexuella* Edwards, 1929. By strictest formality *Mesosmittia* would be an objective synonym of *Pseudorthocladius* if the latter was understood according to Edwards (1932). However, *Mesosmittia* and its type species are maintained here following the proposal by Cranston (1975), and according to unanimous usage since Brundin (1956). The genus was revised by Sæther (1985), who added six new Nearctic and one new Neotropical species to the Palaearctic *M. flexuella*. Recently Sæther (1996) described an additional species from Tanzania in East Africa. Wang and Zheng (1990) described two species from China. However, Sæther (1996) considered both species to be synonyms of *M. patrihortae* Sæther, 1985.

Almost nothing is known about the ecology of the genus. Strenzke (1950) stated that the immatures of *M. flexuella* were terrestrial, and described the larva. However, adults of this species have been caught in emergence traps submerged in fast flowing streams (Cranston et al. 1989). The records in Sæther (1985) also indicate that the genus is at least semiaquatic. The pupae of *Mesosmittia* are unknown.

Only one species of *Mesosmittia* has so far been recorded from the Neotropical region (Spies & Reiss 1996), namely *M. truncata* Sæther, 1985, described based on a male from the Canal Zone in Panama. In the present paper we describe four new species from Mexico, Guatemala and Ecuador. In addition the known range of five species described from North America by Sæther (1985) is extended southwards into Mexico and the Neotropical Region.

## Methods and material

The material examined was mounted on slides following the procedure outlined by Sæther (1969). The general terminology follows Sæther (1980). The measurements are given as ranges followed by a mean when more than three specimens have been measured.

Type material of the *Mesosmittia* species described by Sæther (1985, 1996) and deposited in the Museum of Zoology, Bergen, Norway (ZMBN), have been studied for comparison. The holotypes and paratypes of the four new species described below are also deposited in this collection.

### *Mesosmittia* Brundin, 1956

*Mesosmittia* Brundin, 1956: 163; Sæther 1985: 38; Cranston et al. 1989: 211.

**Type species.** *Spaniotoma (Orthocladius) flexuella* Edwards, 1929: 319 by original designation.

**Other included species.** *M. acutistylus* Sæther, 1985: 43; *M. annae*, spec. nov.; *M. cristaga* Sæther, 1996: 290; *M. glabra*, spec. nov.; *M. guanajensis*, spec. nov.; *M. hirta*, spec. nov.; *M. lobiga* Sæther, 1985: 45; *M. mina* Sæther, 1985: 46; *M. nigerrima* (Kieffer, 1918: 81); *M. patrihortae* Sæther, 1985: 47; *M. prolixa* Sæther, 1985: 48; *M. tora* Sæther, 1985: 50; *M. truncata* Sæther, 1985: 51.

**Diagnosis.** As in Sæther (1985) and Cranston et al. (1989).

### Key to male imagines of Neotropical and Mexican *Mesosmittia* Sæther

1. Tergite IX without microtrichia on each side of "anal point" apex (Fig. 10) ..... 2.
  - Tergite IX with microtrichia on each side of "anal point" apex ..... 3.
2. Wing length 1.43-1.62 mm, virga broadened caudally, see Figs 6-12; Ecuador .....
  - ..... *M. glabra*, spec. nov.
  - Wing length 1.11-1.31 mm; virga narrowly triangular, pointed caudally, see Sæther (1985: figs 5C-E); USA, Mexico .....
    - ..... *M. tora* Sæther
3. Gonocoxite with apical, posteriorly directed, rounded projection carrying several strong setae, see Sæther (1985: figs 5A-B); USA, Mexico ..... *M. prolixa* Sæther
  - Gonocoxite without such projection ..... 4.
4. AR > 1.60, wing length 1.20-1.43 mm, squama with 3-6 setae, see Sæther (1985: figs 3C-D, Figs 24-30); USA, Mexico .....
  - ..... *M. lobiga* Sæther
  - AR < 1.55 ..... 5.
5. Squama with >10 setae, wing length 1.64 mm, inferior volsella strongly setose, see Figs 19-23; Ecuador ..... *M. hirta*, spec. nov.
  - Squama with < 8 setae ..... 5.
5. Gonostylus strongly tapering apically, widest basally or medially ..... 6.
  - Gonostylus at most slightly tapering, evenly rounded on outer margin, straight on inner margin ..... 8.
6. Gonostylus widest basally, with long, low crista dorsalis, see Sæther (1985: figs 3A-B); USA, Mexico ..... *M. acutistylus* Sæther
  - Gonostylus widest medially, lacking or with weak crista dorsalis ..... 7.
7. Gonostylus scoop-shaped, lacking crista dorsalis, with strong megaseta, AR 1.24-1.26, see Figs 1-5; Guatemala, Mexico .....
  - ..... *M. annae*, spec. nov.
  - Gonostylus wide in basal two thirds, with low, weak crista dorsalis, with weak megaseta; AR 1.46-1.54, see Figs 13-18; Mexico ....
    - ..... *M. guanajensis*, spec. nov.
8. Costal extension > 100 µm, see Sæther (1985: figs 6A-D); Panama ..... *M. truncata* Sæther
  - Costal extension < 70 µm, see Sæther (1985: figs 4C-E; Figs 31-36); USA, China, South Africa, Mexico, Costa Rica, Nicaragua, Venezuela, Brazil ..... *M. patrihortae* Sæther

## *Mesosmittia acutistylus* Sæther

*Mesosmittia acutistylus* Sæther, 1985: 43, figs 3A-B.

**Material examined.** MEXICO: 1♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Zona Arqueológica, Aguada Grande, 18°07'26.7"N, 89°48'56.7"W, 265 m a.s.l., black light, 20.IX.1997, A. Contreras-Ramos et al. (ZMBN).

**Remarks.** The species has been described in detail by Sæther (1985).

**Distribution and habitat.** The species was described on a single male from New Mexico, U.S.A. The second record is from a wet, tropical lowland forest in south-eastern Mexico, at 265 m altitude.

## *Mesosmittia annae*, spec. nov.

Figs 1-5

**Material examined.** Holotype: ♂, (ZMBN type No. 355, slide-mounted in Canada balsam), GUATEMALA: Santa Rosa, Pueblo Nueve Viñas, Finca Maria Mundo, 1800 m a.s.l., 9.XI.1999, Malaise trap, A. C. Bailey & J. Monzón Sierra. – Paratype: 1♂, MEXICO: Campeche State, Calakmul, Calakmul Biosphere Reserve, Zona Arqueológica, Aguada Grande, 18°07'26.7"N, 89°48'56.7"W, 265 m, 20.IX.1997, Malaise trap, A. Contreras-Ramos et al. (ZMBN).

**Diagnosis.** Easily distinguished from all other described species of the genus by the gonostylus, which is scoop-shaped with a comparatively strong megaseta.

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR
p <sub>1</sub>	392-441	472-488	264 (1)	148 (1)	104 (1)	64 (1)	44 (1)	0.56 (1)	3.12 (1)	3.26 (1)	2.8 (1)
p <sub>2</sub>	392-428	396-444	172-188	88-92	68-72	42-46	30-34	0.42-0.43	4.07-4.49	4.58-4.64	3.18-3.23
p <sub>3</sub>	4.25 (1)	484-520	248 (1)	128 (1)	108 (1)	52 (1)	36 (1)	0.51 (1)	3.57 (1)	3.66 (1)	3.5 (1)

Hypopygium (Figs 4-5). Tergum IX with 11-12 setae, laterosternite IX with 4-5 setae. Phallapodeme 55-61 µm long, transverse sternapodeme curved, 57-66 µm long. Virga 47 µm long. Gonocoxite 137-158 µm long, distance along inner margin from apex of gonocoxite to apex of inferior volsella 35-39 µm, width of volsella including knob-like projection 18-21 µm, width without projection 14-17 µm. Gonostylus with strongly rounded outer margin, 70-78 µm long, lacking crista dorsalis. Megaseta 8 µm long. HR 1.97-2.02; HV 2.28-2.56.

## Description

**Adult male** (n = 2, except when otherwise stated).

Total length 1.97-2.11 mm. Wing length 1.02-1.18 mm. Total length/wing length 1.78-1.94. Wing length/length of profemur 2.69 (1). Coloration dark brown, legs brown.

Head. AR 1.24-1.26, ultimate flagellomere 388-392 µm long. Temporal seta 8, including 4 inner verticals, and 4 outer verticals. Clypeus with 6 setae. Tentorium, stipes and cibarial pump as in Fig. 1. Tentorium 107-121 µm long, 19-23 µm wide; stipes 105-117 µm long, 23 (1) µm wide. Palp segments lengths in µm: 21-23, 40-43, 66-74, 64-70, 107 (1). Third palpal segment with 2-3 sensilla clavata subapically, longest 10-11 µm long.

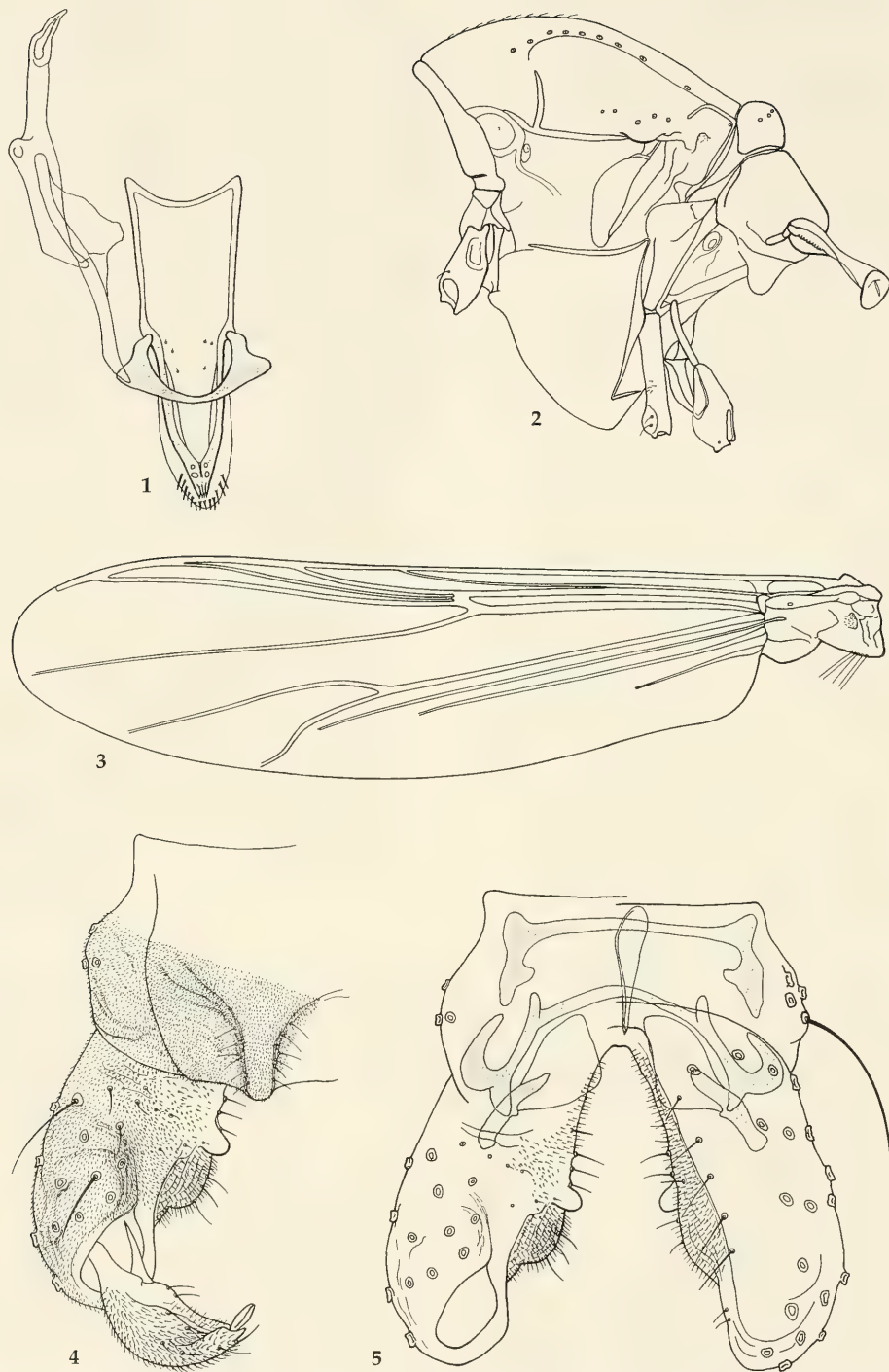
Thorax (Fig. 2). Anteprepronotum without seta. Dorsocentrals 7-9, acrostichals 9-12, prealars 5. Scutellum with 6 setae.

Wing (Fig. 3). VR 1.35-1.39. Costal extension 41-45 µm long. Brachiolium with 1 seta. Squama with 3-5 setae.

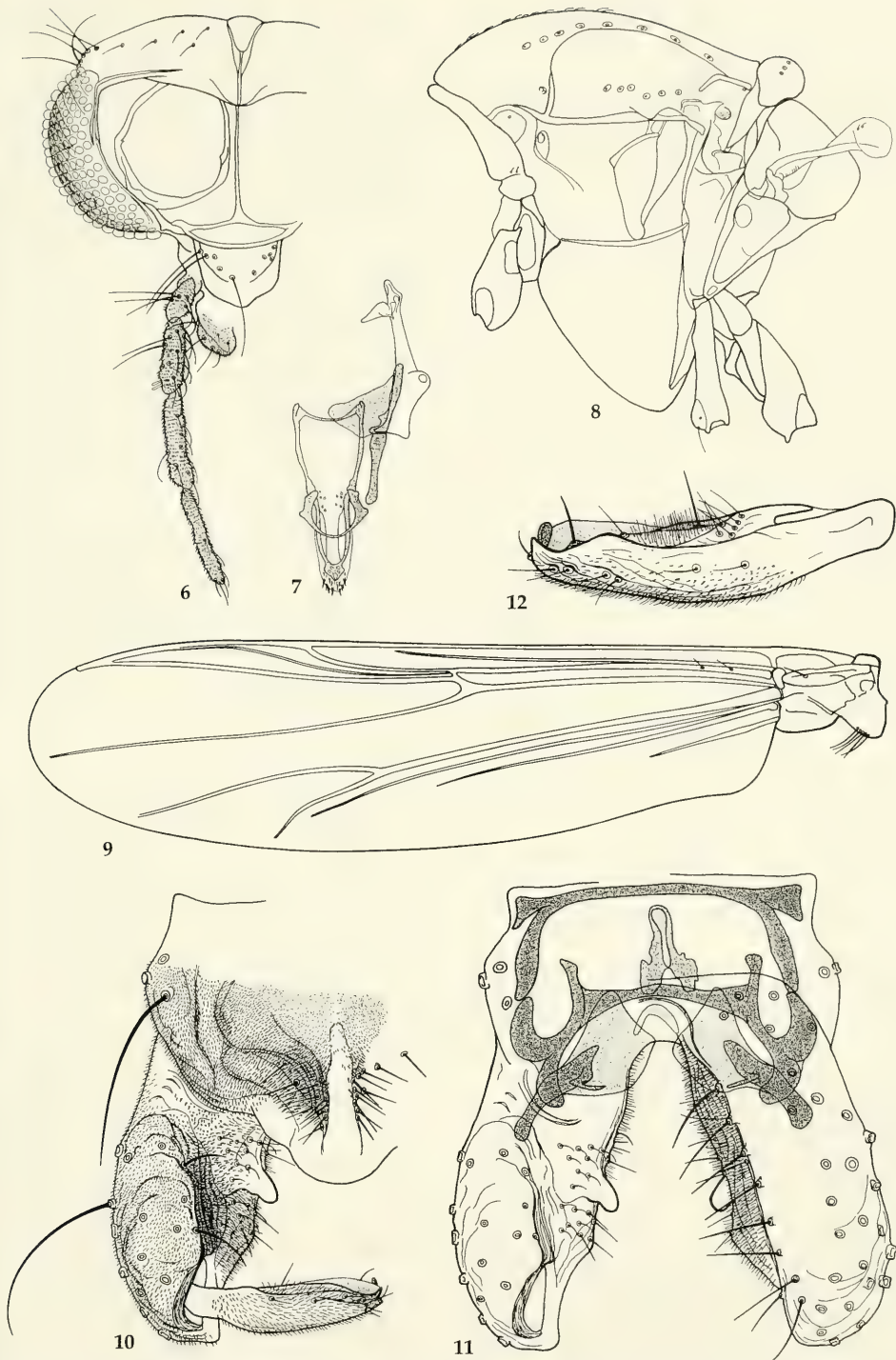
Legs. Spur of front tibia 41-46 µm long, spurs of mid tibia 22-23 µm and 18-19 µm long, of hind tibia 25-35 µm and 15-19 µm. Width at apex of front tibia 26-28 µm, of mid tibia 22-25 µm, of hind tibia 28-32 µm. Hind tibial comb with 10 setae, shortest setae 13-15 µm long, longest setae 26-30 µm long. Lengths (in µm) and proportion of legs:

**Etymology.** Named after Anna Cristina Bailey, who collected the holotype.

**Distribution and habitat.** The species is known from south-western Guatemala and south-eastern Mexico. The holotype was collected at 1800 m altitude in a Pino-Eucino forest. The paratype was taken in a wet lowland forest at 265 m altitude.



Figs 1-5. *Mesosmittia annae*, spec. nov., ♂ imago. 1. Tentorium, stipes and cibarial pump. 2. Thorax. 3. Wing. 4. Tergite IX and dorsal aspect of left gonocoxite and gonostylus. 5. Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect.



Figs 6-12. *Mesosmittia glabra*, spec. nov., ♂ imago. 6. Head. 7. Tentorium, stipes and cibarial pump. 8. Thorax. 9. Wing. 10. Tergite IX and dorsal aspect of left gonocoxite and gonostylus. 11. Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect. 12. Gonostylus, ventral aspect.

*Mesosmittia glabra*, spec. nov.

Figs 6-12

**Material examined.** Holotype: ♂, (ZMBN type No. 356, slide-mounted in Canada balsam), ECUADOR: Pichincha Province, Quito, Parque Metropolitano, 6.II.1997, 2850 m a.s.l., sweep net, J. Skartveit. - Paratypes: 5♂♂, as holotype (ZMBN).

**Diagnosis.** The comparatively wide "anal point" and the lack of microtrichia on tergite IX on each side of the "anal point" separate the species from all other described species except *M. tora*. It can be separated from *M. tora* on its larger size and on the shape of the virga, which is broadened caudally in *M. glabra*, spec. nov., whereas in *M. tora* it is narrowly triangular and pointed caudally.

**Description**

**Adult male** (n = 5-6).

Total length 2.48-2.89, 2.65 mm. Wing length 1.43-1.62, 1.49 mm. Total length/wing length 1.67-1.87, 1.78. Wing length/length of profemur 2.62-3.00, 2.74. Coloration blackish brown, with lighter brown tarsi.

Head. (Fig. 6). AR 1.02-1.15, 1.07, ultimate flagellomere 392-452, 416 µm long. Temporal

seta 9-11, 10, including 4-5, 5 inner verticals, and 5-6, 5 outer verticals. Clypeus with 6-9, 8 setae. Tentorium, stipes and cibarial pump as in Fig. 7. Tentorium 131-151, 141 µm long, 26-32, 29 µm wide; stipes 130-145, 1.39 µm long, 46-55, 51 µm wide. Palp segments lengths in µm: 22-29, 26; 44-52, 49; 88-106, 96; 97-113, 107; 115-160, 138; 130-145, 139. Third palpal segment with 3-4, 3 sensilla clavata subapically, longest 11-12 µm long.

Thorax (Fig. 8). Antepronotum with 2-3, 3 seta. Dorsocentrals 6-11, 9; acrostichals 10-14, 13; prealars 4-6, 5. Scutellum with 7-10, 8 setae.

Wing (Fig. 9). VR 1.29-1.32, 1.31. Costal extension 28-46, 36 µm long. Brachiolum with 1 seta. R with 1-5, 3 setae; costal extension with 0-1, 0 seta; other veins bare. Squama with 5-8, 6 setae.

Legs. Spur of front tibia 47-54, 50 µm long, spurs of mid tibia 33-36, 35 µm and 26-33, 28 µm long, of hind tibia 51-59, 56 µm and 22-48, 33 µm. Width at apex of front tibia 33-36, 35 µm, of mid tibia 33-37, 35 µm, of hind tibia 41-51, 46 µm. Hind tibial comb with 11-14, 12 setae, shortest setae 22-26, 24 µm long, longest setae 35-44, 40 µm long. Lengths (in µm) and proportion of legs:

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>
p <sub>1</sub>	523-564, 543	572-743, 686	318-384, 339	196-245, 219	139-155, 144	82-98, 90	49-57, 55
p <sub>2</sub>	564-613, 580	580-654, 606	237-278, 256	131-147, 139	98-106, 101	57-65, 63	46-51, 49
p <sub>3</sub>	605-662, 629	662-743, 705	343-399, 380	196-212, 203	147-172, 159	78-86, 81	49-57, 55
	LR	BV	SV	BR			
p <sub>1</sub>	0.46-0.52, 0.49	2.87-3.19, 3.09	3.36-3.95, 3.64	2.71-3.16, 2.91			
p <sub>2</sub>	0.40-0.44, 0.42	3.98-4.27, 4.10	4.38-4.86, 4.64	2.87-3.71, 3.12			
p <sub>3</sub>	0.52-0.56, 0.54	3.34-3.49, 3.43	3.35-3.69, 3.52	4.33-5.54, 4.98			

Hypopygium (Figs 10-12). Tergum IX with 20-33, 25 setae; "anal point" a strong, wide ridge with marked boundary orally, less well delimited caudally, practically void of microtrichia; laterosternite IX with 4-8, 6 setae. Phallapodeme 68-80, 72 µm long, transverse sternapodeme 77-89, 83 µm long. Virga 40-59, 48 µm long. Gonocoxite 193-213, 204 µm long, distance along inner margin from apex of gonocoxite to apex of inferior volsella 35-47, 40 µm, width of volsella including knob-like projection 19-30,

27 µm, width without projection 14-19, 17 µm. Gonostylus 88-97, 93 µm long. Megaseta 6-8, 7 µm long. HR 2.07-2.28, 2.19, HV 2.68-2.99, 2.85.

**Etymology.** From Latin *glaber* meaning bald, smooth, referring to the hairless apex of tergum IX.

**Distribution and habitat.** The species is known only from the type locality in Ecuador. The specimens were netted in a ravine with seepages, at a high elevation site.

*Mesosmittia guanajensis*, spec. nov.

Figs 13-18

**Material examined.** Holotype: ♂, (ZMBN type No. 357, slide-mounted in Canada balsam), MEXICO: Guanajuato State, Acámbaro, Presa Solís, 500 m West of floodgate, 22.VII.1997, in spider web, T. Andersen & A. Contreras-Ramos. – Paratypes: 2♂♂, as holotype (ZMBN).

**Diagnosis.** The species groups with *M. acutistylus* Sæther and *M. annae*, spec. nov. in having a gonostylus which is strongly tapering apically. However, it can easily be distinguished from the two others by having the gonostylus widest in basal two thirds and with a comparatively weak megaseta.

**Description**

**Adult male** (n=2-3).

Total length 2.22-2.28 mm. Wing length 1.14-1.19 mm. Total length/wing length 1.86-1.88. Wing length/length of profemur 2.71-2.81. Coloration blackish brown, with lighter brown tarsi.

Head. (Fig. 13). AR 1.46-1.54, ultimate flagellomere 466-490 µm long. Temporal seta 7-8, including 3-4 inner verticals, 4 outer verticals. Clypeus with 6-12 setae. Tentorium, stipes and cibarial pump as in Fig. 14. Tentorium 121-123 µm long, 25-28 µm wide; stipes 116-120 µm long, 25-28 µm wide. Palp segments lengths in µm: 22-25, 45-51, 86-88, 80-88, 115-117. Third palpal segment with 2-3 sensilla clavata subapically, longest 12-14 µm long.

Thorax (Fig. 15). Antepnotum with 0-1 seta. Dorsocentrals 8-9, acrostichals 9-13, prealars 5-7. Scutellum with 6-7 setae.

Wing (Fig. 16). VR 1.31-1.32. Costal extension 27-31 µm long. Brachiolum with 1 seta. Squama with 6-7 setae.

Legs. Spur of front tibia 28-44 µm long, spurs of mid tibia 22-26 µm and 15-17 µm long, of hind tibia 43-47 µm and 16-20 µm. Width at apex of front tibia 29-30 µm, of mid tibia 30-31 µm, of hind tibia 39-41 µm. Hind tibial comb with 10-12 setae, shortest setae 15-17 µm long, longest setae 30-35 µm long. Lengths (in µm) and proportion of legs:

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR
p <sub>1</sub>	432-464	528-596	264-280	164-176	112-116	68-76	44-48	0.44-0.53	3.19-3.28	3.87-4.02	2.25 (1)
p <sub>2</sub>	480-520	500-540	180-196	104-112	72-80	44-48	40-44	0.33-0.39	4.32-4.49	5.21-5.89	3.23-3.62
p <sub>3</sub>	508-536	568-616	328 (1)	160 (1)	140 (1)	72 (1)	48 (1)	0.53 (1)	3.52 (1)	3.51 (1)	4.2 (1)

Hypopygium (Figs 17-18). Tergum IX with 9-10 setae, laterosternite IX with 6-7 setae. Phallopodeme 72-74 µm long, transverse sternapodeme 74-82 µm long. Virga 47-52 µm long. Gonocoxite 181-193 µm long, distance along inner margin from apex of gonocoxite to apex of inferior volsella 35-39 µm, width of volsella including knob-like projection 27-31 µm, width without projection 18-21 µm. Gonostylus 92-98 µm long, lacking crista dorsalis. Megaseta 5-6 µm long. HR 1.89-2.00, HV 2.41-2.63.

**Etymology.** Named after Guanajuato State in Mexico, using the Latin suffix *-ensis* denoting place of origin.

**Distribution and habitat.** The species is known from three males taken close to a man-made dam in central Mexico.

*Mesosmittia hirta*, spec. nov.

Figs 19-23

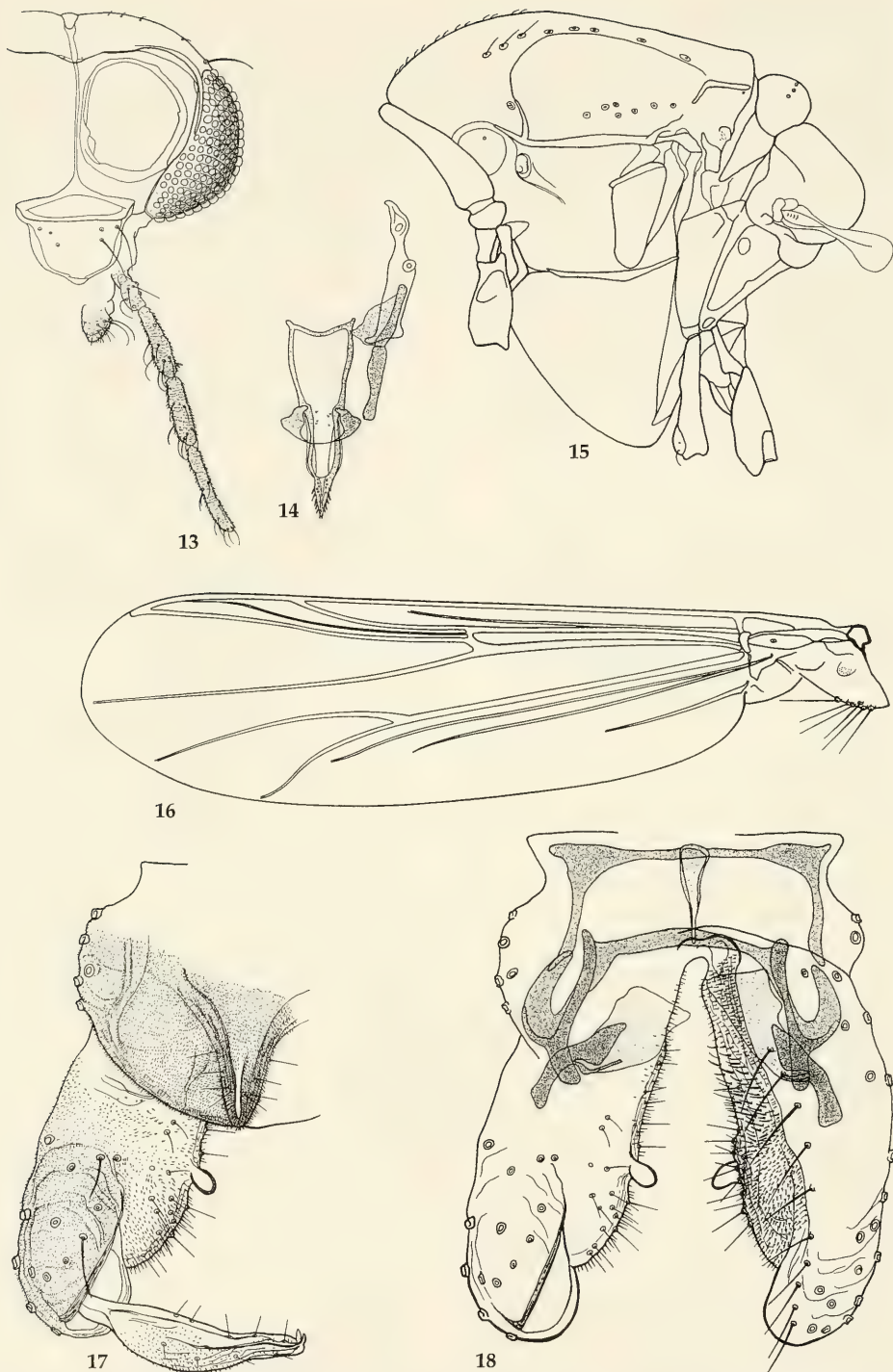
**Material examined.** Holotype: ♂, (ZMBN type No. 358, slide-mounted in Canada balsam), ECUADOR: Pichincha Province, Pasochoa Reserve, 3000 m a.s.l., 4.II.1997, sweep net, J. Skartveit.

**Diagnosis.** The combination of large size (wing length larger than 1.5 mm), squama with more than 10 setae, and the strongly setose inferior volsella will separate the species from all other described species of the genus.

**Description**

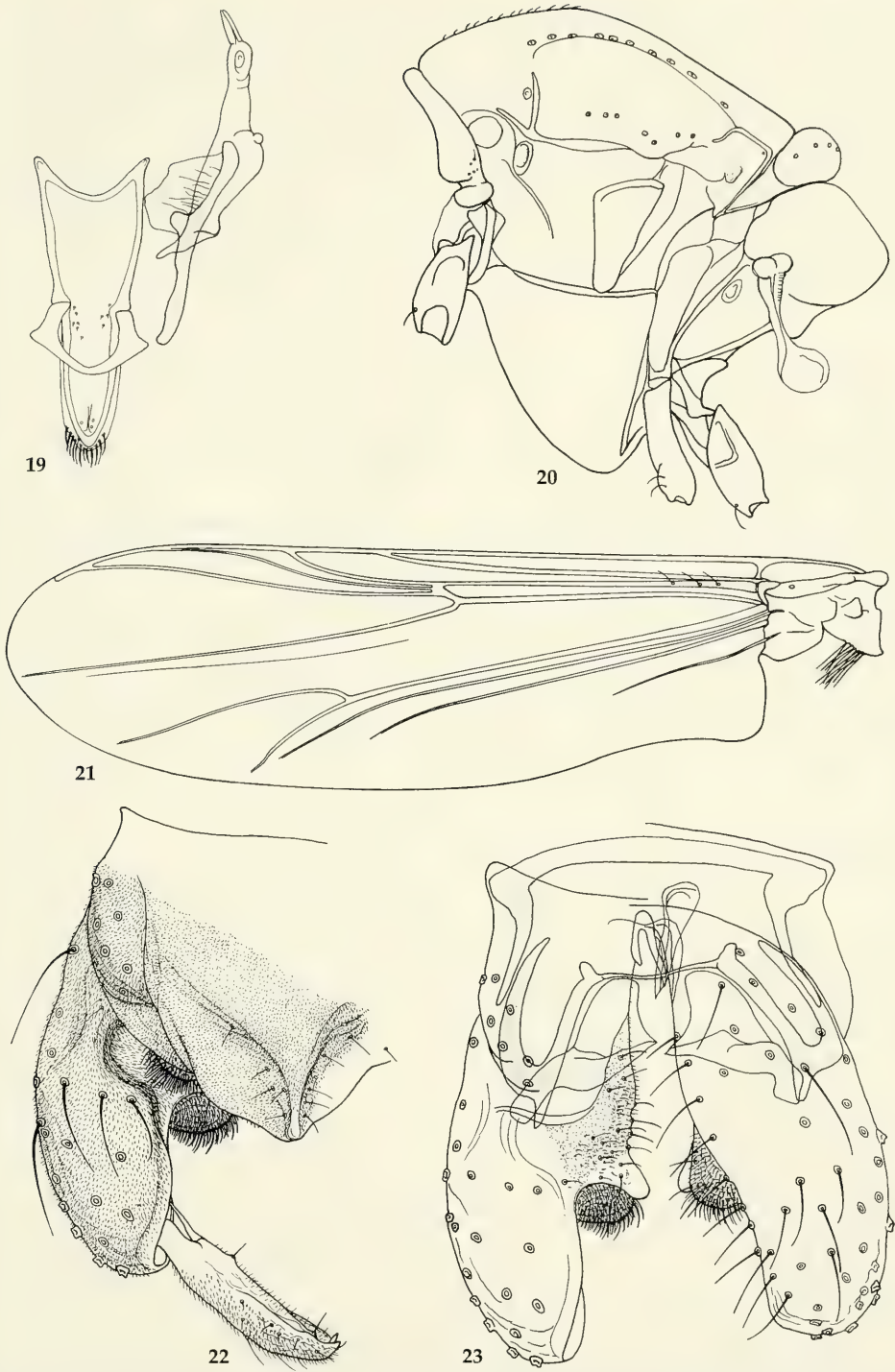
**Adult male** (n=1).

Total length 2.73 mm. Wing length 1.64 mm. Total length/wing length 1.66. Wing length/length of profemur 2.51. Coloration blackish brown.



Figs 13-18. *Mesosmittia guanajensis*, spec. nov., ♂ imago. 13. Head. 14. Tentorium, stipes and cibarial pump. 15. Thorax. 16. Wing. 17. Tergite IX and dorsal aspect of left gonocoxite and gonostylus. 18. Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect.





**Figs 19-23.** *Mesosmittia hirta*, spec. nov., ♂ imago. 19. Tentorium, stipes and cibarial pump. 20. Thorax. 21. Wing. 22. Tergite IX and dorsal aspect of left gonocoxite and gonostylus. 23. Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect.

Head. AR 1.06, ultimate flagellomere 440  $\mu\text{m}$  long. Temporal seta 9, including 4 inner verticals, 5 outer verticals. Clypeus with 8 setae. Tentorium, stipes and cibarial pump as in Fig. 19. Tentorium 162  $\mu\text{m}$  long, 35  $\mu\text{m}$  wide; stipes 169  $\mu\text{m}$  long, 49  $\mu\text{m}$  wide. Palp segments lengths in  $\mu\text{m}$ : 37, 55, 90, 117, 164. Third palpal segment with 5 sensilla clavata subapically, longest 15  $\mu\text{m}$  long.

Thorax (Fig. 20). Antepronotum with 5 setae. Dorsocentrals 10, acrostichals 13, prealars 8.

Scutellum with 6 setae.

Wing (Fig. 21). VR 1.42. Costal extension 53  $\mu\text{m}$  long. Brachiolum with 1 seta. R with 3 setae, other veins bare. Squama with 11 setae.

Legs. Spur of front tibia 48  $\mu\text{m}$  long, spurs of mid tibia 25  $\mu\text{m}$  and 16  $\mu\text{m}$  long, of hind tibia 53  $\mu\text{m}$  and 23  $\mu\text{m}$ . Width at apex of front tibia 36  $\mu\text{m}$ , of mid tibia 35  $\mu\text{m}$ , of hind tibia 46  $\mu\text{m}$ . Hind tibial comb with 11 setae, shortest setae 21  $\mu\text{m}$  long, longest setae 33  $\mu\text{m}$  long. Lengths (in  $\mu\text{m}$ ) and proportion of legs:

	fe	ti	ta <sub>1</sub>	ta <sub>2</sub>	ta <sub>3</sub>	ta <sub>4</sub>	ta <sub>5</sub>	LR	BV	SV	BR
P <sub>1</sub>	654	841	449	359	180	114	57	0.53	2.73	3.32	2.0
P <sub>2</sub>	678	686	294	155	98	65	49	0.42	4.51	4.60	1.9
P <sub>3</sub>	703	792	539	261	196	98	57	0.68	3.32	2.77	2.0

Hypopygium (Figs 22-23). Tergum IX with 16 setae, laterosternite IX with 7 setae. Phallopodeme 66  $\mu\text{m}$  long, transverse sternapodeme 74  $\mu\text{m}$  long. Virga 52  $\mu\text{m}$  long. Gonocoxite 233  $\mu\text{m}$  long, distance along inner margin from apex of gonocoxite to apex of inferior volsella 92  $\mu\text{m}$ , width of inferior volsella including knob-like projection 41  $\mu\text{m}$ , width without projection 35  $\mu\text{m}$ ; inferior volsella strongly setose. Gonostylus 113  $\mu\text{m}$  long, with low, weak crista dorsalis. Megaseta 5  $\mu\text{m}$  long. HR 2.07; HV 2.45.

**Etymology.** From Latin *hirtus*, meaning hairy, rough, shaggy, referring to the densely hairy inferior volsella.

**Distribution and habitat.** The species is known from a single male only, taken at 3000 m altitude in the province of Pichincha, Ecuador. The specimen was taken with sweep net in an area with pastures and seepages.

### *Mesomittia lobiga* Sæther

Figs 24-30

*Mesomittia lobiga* Sæther, 1985: 45, figs 3C-D.

*Mesomittia flexuella* Sublette & Sublette, 1979: 77; nec Edwards, 1929.

**Material examined.** MEXICO: 1♂, Nuevo León State, Santiago, 30 km West of Cola de Caballo on road to Laguna de Sánchez, 19.IX.1998, light trap, T. Andersen & A. Contreras-Ramos; 2♂♂, Guanajuato State, Acámbaro, Presa Solís, 500 m West of floodgate, 22.VII.1997, in spider web, T. Andersen & A. Contreras-Ramos.

**Remarks.** The Mexican specimens fall within the ranges given for *M. lobiga* by Sæther (1985) for most measurements and ratios. (The antennae of the type material are lost; the Mexican specimens have an AR of 1.60-1.64, the ultimate flagellomere is 492-496  $\mu\text{m}$  long). There appears, however, to be slight differences in the shape of the hypopygium, as the Mexican specimens have more and stronger setae on tergum IX, and a more well set off knob of the inferior appendage. We therefore figure one of the specimens from Acámbaro.

**Distribution and habitat.** The type material is from New Mexico, southern USA. The present paper adds records from northeastern and central Mexico. The specimen from northeastern Mexico was taken in a light trap close to a small river, while the specimens from central Mexico were taken in spider webs close to a man-made dam.

### *Mesomittia patrihortae* Sæther

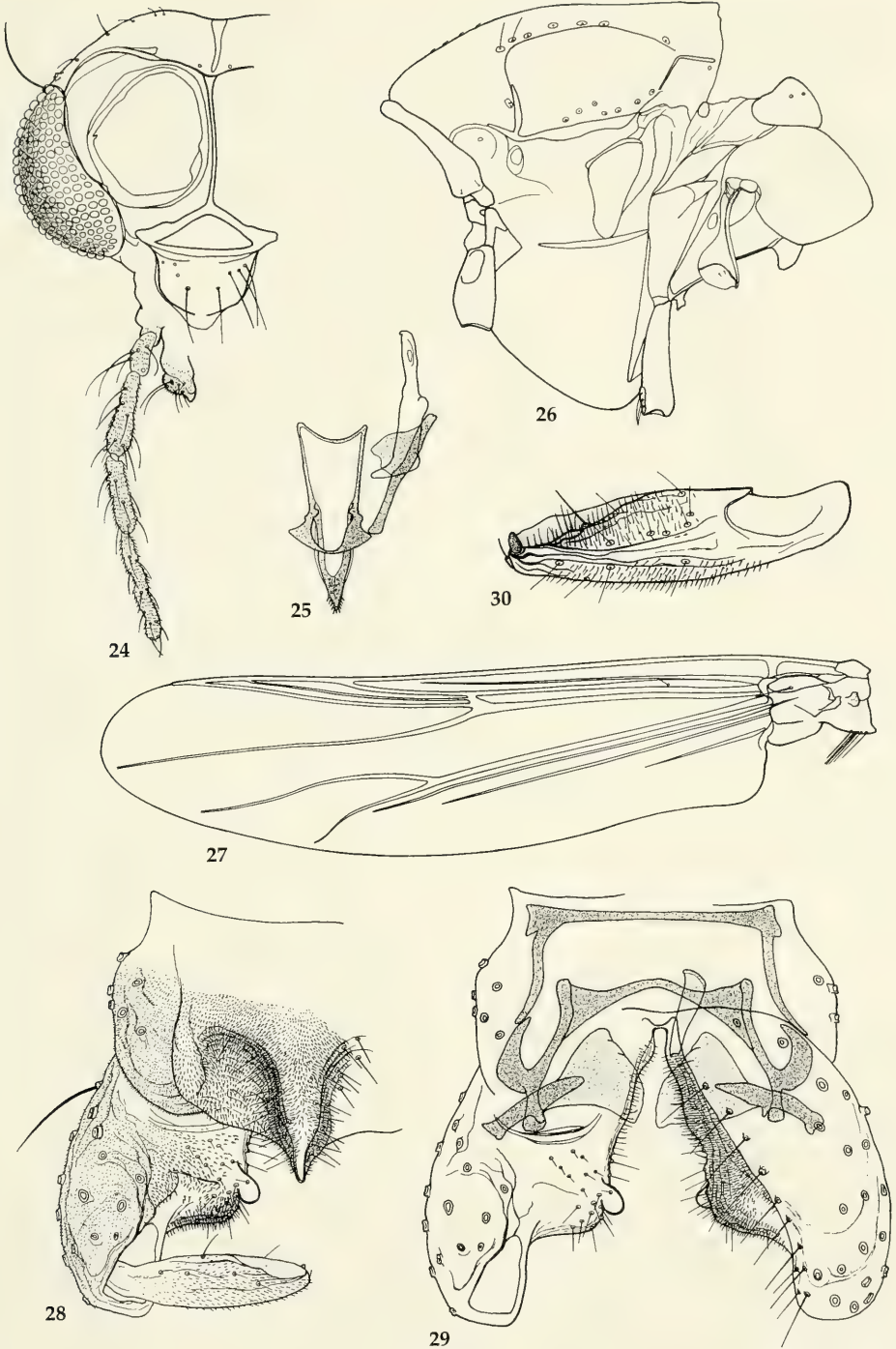
Figs 31-36

*Mesomittia patrihortae* Sæther, 1985: 47, figs 4C-E.

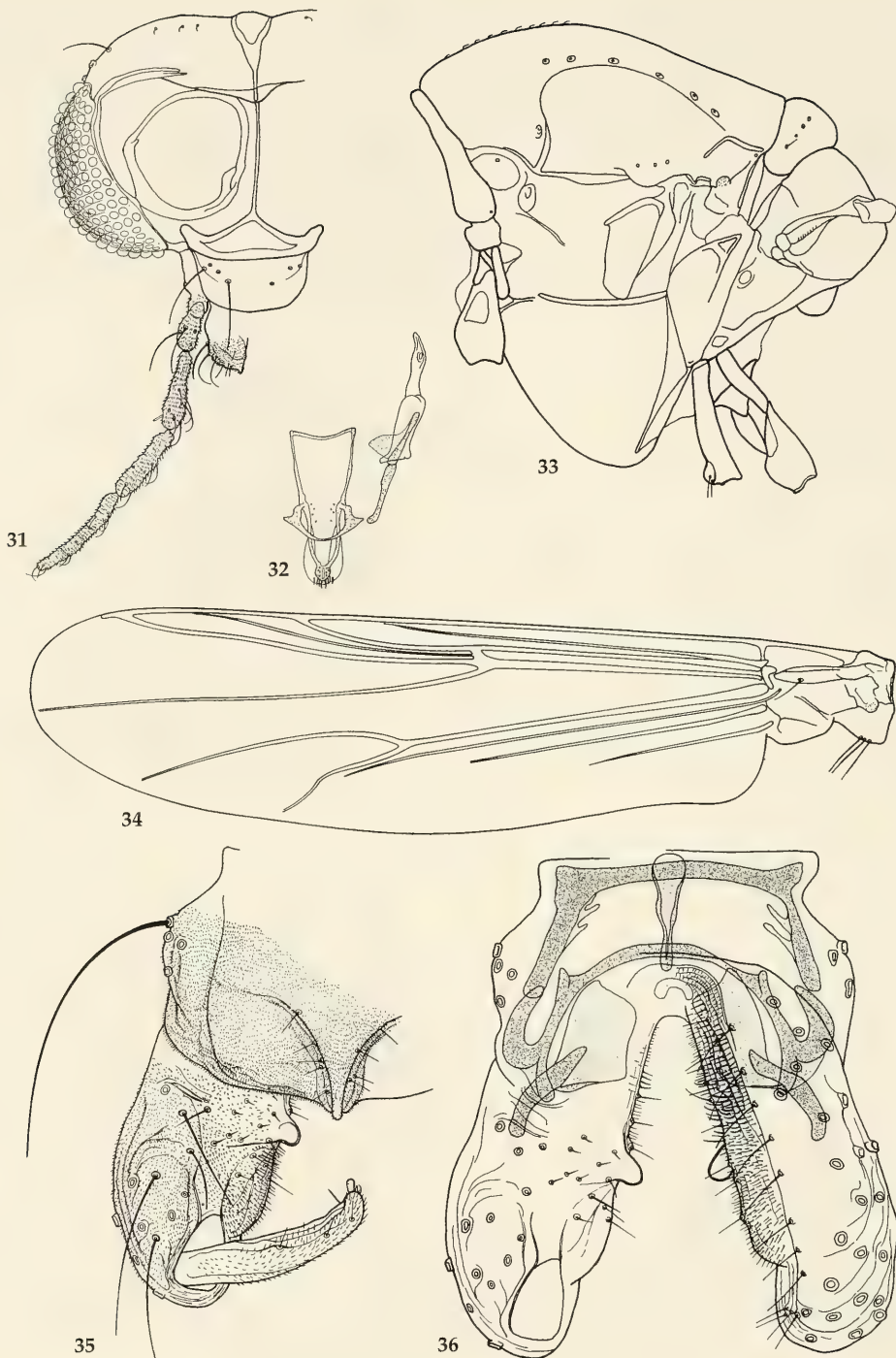
*Mesomittia dolichoptera* Wang & Zheng, 1990: 486.

*Mesomittia yunnanensis* Wang & Zheng, 1990: 488.

**Material examined.** BRAZIL: 2♂♂, São Paulo State, Pedregulho, Furna São Pedro, 20°09'10"S, 47°30'38"W, 573 m a.s.l., 16.X.2000, light trap, T. Andersen & H.F. Mendes. COSTA RICA: 3♂♂, Heredia Province, La Selva Biological Station, 10°26'N, 83°59'W, 2.III.1993, Malaise trap, O.A. Sæther. ECUADOR:



**Figs 24-30.** *Mesosmittia lobiga* Sæther, ♂ imago from Acámbaro in Mexico. **24.** Head. **25.** Tentorium, stipes and cibarial pump. **26.** Thorax. **27.** Wing. **28.** Tergite IX and dorsal aspect of left gonocoxite and gonostylus. **29.** Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect. **30.** Gonostylus, ventral aspect.



Figs 31-36. *Mesosmittia patrihortae* Sæther, ♂ imago from Calakmul in southeastern Mexico. 31. Head. 32. Tentorium, stipes and cibarial pump. 33. Thorax. 34. Wing. 35. Tergite IX and dorsal aspect of left gonocoxite and gonostylus. 36. Hypopygium with tergite IX removed; left: dorsal aspect, right: ventral aspect.

3♂♂, Pichincha State, Sto Domingo de los Colorados, Barrio Sta. Martha, 16.II.1997, 500 m a.s.l., sweep net, J. Skartveit. MEXICO: 4♂♂, Nuevo León State, Allende, Rio Ramos at Raices, 2 km West of Highway 85, 20.IX.1998, sweep net, T. Andersen & A. Contreras-Ramos; 1♂, Nuevo León State, Santiago, 30 km West of Cola de Caballo on road to Laguna de Sánchez, 19.IX.1998, sweep net, T. Andersen & A. Contreras-Ramos; 3♂♂, Veracruz State, Los Tuxtlas, Tres Zapotes, 22.I.1995, sweep net, L.O. Hansen; 24♂♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Zona Arqueológica, Aguada Grande, 18°07'26.7"N, 89°48'56.7"W, 265 m a.s.l., Malaise trap & light trap, 20-22.IX.1997, A. Contreras-Ramos et al.; 2♂♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Aguada Zoh-Laguna, 18°35'21.3"N, 89°25'0.7"W, 327 m a.s.l., 23-24.IX.1997, Malaise trap, A. Contreras-Ramos et al.; 4♂♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Ejido Gustavo Diaz Ordaz, San Antonio Soda, Rio Escondido, 18°24'54.9"N, 89°08'13.2"W, 170 m a.s.l., 22-23.IX.1997, Malaise trap, A. Contreras-Ramos et al.; 1♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Ejido Nuevo Becan, El Chorro, 18°35'25.5"N, 89°15'28.8"W, 130 m a.s.l., 30.IV.1997, Malaise trap, A. Contreras-Ramos et al. NICARAGUA: 1♂, El Coyolar, 50 km NE of Matagalpa, vi.1991, S. Hue (ZSM). VENEZUELA: 12♂♂, Aragua State, Parque Nacional Henri Pittier, Rancho Grande, 10°21.047'N, 67°41.198'W, 16-18.IX.1999, 1000 m a.s.l., light trap, T. Andersen.

**Remarks.** The wing length of the Central and South American specimens appears to be approximately the same as in the North American type material. However, most specimens have

slightly higher venarum ratio, longer costal extension and lower antennal ratio, Tab. 1. The specimen recorded by Sæther (1996) from South Africa also has a comparatively long costal extension, but a higher antennal ratio than the specimens from the new world. As shown by Sæther (1985) the species is also variable in the shapes of the inferior volsella and the gonostylus. We figure one specimen from Calakmul in southeastern Mexico which have a rather narrow, curved gonostylus, with a very low crista dorsalis (Figs 31-36).

Wang & Zheng (1990) described two *Mesosmittia* species, *M. dolichoptera* and *M. yunnanensis*, from China. Sæther (1996) placed both species as synonyms of *M. patrihortae*. In his recent checklist of the chironomids from China, Wang (2000) lists *M. yunnanensis* as a separate species. However, as no explanation was given, we follow Sæther (1996) and consider *M. yunnanensis* a junior synonym of *M. patrihortae*.

**Distribution and habitat.** The species has been recorded from Alabama, Georgia, Kentucky, and South Carolina in the USA (Caldwell et al. 1997), and from South Africa and China (Sæther 1985, 1996). The present paper adds records from Mexico, Nicaragua, Costa Rica, Venezuela, Brazil and Ecuador. In Central and South America the species appears to be rather common, particularly in lowland tropical forests.

**Tab. 1.** Wing lengths, venarum ratios, lengths of Costa extension, and antennal ratios of *Mesosmittia patrihortae* Sæther, 1985 from North America, South Africa, and from 8 localities in Central and South America.

Locality	Wing length in mm	VR in $\mu\text{m}$	Costa ext.	AR
USA (Sæther 1985; n=10)	1.00-1.20, 1.10	1.21-1.30, 1.24	8-34, 21	1.24-1.49, 1.35
Mexico: Nuevo León State (n=4)	0.93-1.01, 0.98	1.34-1.45, 1.38	23-41, 31	0.98-1.23, 1.07
Mexico: Veracruz State (n=3)	1.01-1.07	1.32-1.43	31-57	0.95-1.20
Mexico: Campeche State (n=16)	0.84-1.01, 0.94	1.30-1.52, 1.37	25-58, 38	0.96-1.34, 1.17
Nicaragua (n=1)	0.99	not measurable	50	1.13
Costa Rica: Heredia Province (n=3)	0.86-0.93	1.39-1.46	45-62	1.00-1.07
Venezuela: Aragua State (n=10)	0.93-1.19, 1.10	1.32-1.47, 1.41	41-53, 46	0.86-1.18, 1.10
Brazil: São Paulo State (n=2)	0.99-1.03	1.32-1.33	45-51	0.89-0.91
Ecuador: Pichincha State (n=3)	0.98-1.00	1.33-1.35	40-42	0.97-1.05
South Africa (Sæther 1996; n=1)	–	–	46	1.51

## *Mesosmittia prolixa* Sæther

*Mesosmittia prolixa* Sæther, 1985: 48, figs 5A-B.

**Material examined.** MEXICO: 1♂, Nuevo León State, Allende, Rio Ramos at Raices, 2 km West of Highway 85, 20.IX.1998, light trap, T. Andersen & A. Contreras-Ramos; 1♂, Campeche State, Calakmul, Calakmul Biosphere Reserve, Ejido Nuevo Becan, El Chorro, 18°35'25.5"N, 89°15'28.8"W, 130 m a.s.l., 30.IV.1997, Malaise trap, A. Contreras-Ramos et al.

**Remarks.** The species was described in detail by Sæther (1985). The figure supposedly showing *M. prolixa* in Cranston et al. (1989: fig. 9.46E) must be of another species.

**Distribution and habitat.** The species was described based on material from Georgia, Kansas, Kentucky, New Mexico, Indiana and Tennessee in the USA. The new specimen from south-eastern Mexico was taken in a wet, lowland tropical forest, the one from north-eastern Mexico close to a fast flowing river.

## *Mesosmittia tora* Sæther

*Mesosmittia tora* Sæther, 1985: 50, figs 5C-E.

**Material examined.** MEXICO: 14♂♂, Nuevo León State, Allende, Rio Ramos at Raices, 2 km West of Highway 85, 20.IX.1998, sweep net, T. Andersen & A. Contreras-Ramos; 30♂♂, Nuevo León State, Santiago, 30 km West of Cola de Caballo on road to Laguna de Sánchez, 19.IX.1998, sweep net, T. Andersen & A. Contreras-Ramos.

**Remarks.** The species was described in detail by Sæther (1985).

**Distribution and habitat.** The type material is from South Dakota in USA. The present paper adds records from northeastern Mexico, where males were netted in high numbers in humid areas with short grass vegetation along streams and rivers.

## *Mesosmittia truncata* Sæther

*Mesosmittia truncata* Sæther, 1985: 51, figs 6A-D.

**Remarks.** As pointed out by Sæther (1985) the species is practically inseparable from *M. patrihortae* on hypopygial features, but differs from

other known species of the genus in the low antennal ratio, the high venarum ratio, the long extension of the costa and the leg ratio of the hind leg. South and Central American specimens of *M. patrihortae* show slight variation in most of these features, see Tab. 1. The only character which separates *M. truncata* from *M. patrihortae* appears to be the length of the costal extension, being 116 µm long in *M. truncata*, while between 8 and 62 µm in *M. patrihortae*.

**Distribution.** The species is only known from one male from Panama.

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